# HAZARDS MITIGATION PLAN UPDATE





















# Elected Officials Redmond Mayor

John Marchione

#### **Redmond City Council**

President, Nancy McCormick
Vice President, John P. (Pat) Vache
Kimberly Allen
David Carson
Richard Cole
Dayle (Hank) Margeson
Hank Myers

# **City Staff Project Managers**

Jason Lynch, Building Official
Tom Osborn, Emergency Management

#### **Mitigation Implementation Committee**

Walt Berry, Department of Parks
Amanda Engstfeld, Emergency Management
Ron Grant, Department of Public Works
Bert Guenther, Department of Public Works
Mark Hagreen, Police Department
Stacy Haines, GIS
Linda Hermanson, Finance and Info. Services
Justin Miniken, Department of Parks
Rob Odle, Planning and Development Services
Jim Roberts, Planning and Development Services
Robert Schneider, Emergency Management
Jon Spangler, Natural Resources Manager
Jim Swift, Fire Department
Scott Thomasson, Department of Public Works
Ken Weisenbach, Fire Department

#### Students

**Christy Alexander** Jeff Arango Weston Brinkley Ching Chan Sung-Zhi Chen Amanda Engstfeld Jennifer Gregerson Cecelia Gunn Nate Hickey **Zachary Howard** Daniel Kastoryano Joe Kelly Garrett Klifman Kristen Link Doug McIntyre Cynthia Padilla Sheena Pietzold Noah Roehl Daniel Rowe Christopher Scott **Emily Slotnick** John Vander Sluis Dana Spindler Chilan Ta **Courtney Thomson** Timothy Trujillo Nathan Tseng Michael Xenakis

#### Faculty Professors

Branden Born Bob Freitag Rick Sepler

# Teaching Assistant

Jie Gao

# Master Editors Wendy Buffett Christopher Scott Dana Spindler

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## **EXECUTIVE SUMMARY**

#### **Executive Summary**

This Hazards Mitigation Plan (HMP) Update focuses on long-term improvement and protection of the built and natural environments, infrastructure, communication networks and the livelihood of the City of Redmond. This plan strives to reduce the financial impacts resulting from hazards and create a community more resilient to inevitable hazards.

Through a hazards assessment process, the project team identified hazards that pose a significant threat to Redmond, those that pose a less significant threat, and those that are emerging threats. Severe storms and earthquakes pose the greatest threat to Redmond. Severe storms are expected to increase in frequency and severity as the Northwest becomes more affected by Climate Change. Earthquakes occur infrequently, but the potential devastation of Benioff, Crustal and Subduction earthquakes make this hazard a significant concern.

This 2009 HMP Update builds on the 2004 HMP, with new attention paid to the impacts of Climate Change. Recent studies, recognized by both the state and federal governments, indicate that the weather in the Northwest will be more severe than historical trends, exacerbating current threats and creating new areas of concern.

The project team took a comprehensive approach to develop mitigation strategies. Through a review of the current state of the community, a public process, working with the Mitigation Implementation Committee, and reviewing existing plans, the team developed a set of strategies to minimize the potential impacts of hazards in Redmond. A detailed list of action items supports the following strategies:

- To mitigate impacts involved with isolation following a severe hazard event, Redmond will develop outreach activities to enable Redmond residents, businesses and visitors to survive in-place for more than three days.
- 2. To ensure provision of vital services following a hazard event, Redmond will develop alternative service centers in less hazardous areas.
- 3. To mitigate damage to vulnerable structures and infrastructure, Redmond will promote retrofitting with safe-to-fail mechanisms.
- 4. To mitigate against the loss of major transportation facilities in and around the City, Redmond will invest resources in building more resilient transportation networks.
- 5. To mitigate against the functional loss of business communities, Redmond will develop and deliver business outreach programs.
- 6. To mitigate impacts from expected increases in incidences of shallow flooding, Redmond will build a flood tolerant community able to accommodate increases in low impact flooding.

## How to Use This Plan

#### **How to Use This Plan**

The 2000 Stafford Act, also known as the Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390), made Hazards Mitigation Planning mandatory. Prior to 2000, Federal grant programs existed to provide funds for disaster relief, recovery, and to some extent hazards mitigation planning, but municipalities were not obligated to submit mitigation plans. The DMA strengthened federal legislation by emphasizing mitigation actions and promoting pre-disaster planning.

According to FEMA, "mitigation is the effort to reduce loss of life and property by lessening the impact of disasters." Mitigation includes both structural and non-structural solutions. For example, city codes that prohibit new development in floodplains, community education programs and retrofitting old buildings are all encompassed in mitigation. The City of Redmond Hazards Mitigation Plan (HMP) identifies and outlines strategies to reduce potential impacts of natural hazards. Implementation of the plan will increase public safety and minimize recovery costs.

The HMP is one part of emergency management. Mitigation refers to the actions designed to decrease the impact of an event. The other three elements of emergency management are preparedness, response and recovery. Those phases are addressed in separate, but correlated plans.

This new plan expands upon existing work and information gathered by the City of Redmond's 2004 HMP and 2006 plan update. The HMP serves as a basis for city-level emergency management planning and programming. It helps local businesses, community services, and school districts develop similar documents and coordinate overall disaster mitigation planning efforts. This document is an important first step toward making the City of Redmond more resilient to natural disasters.

This HMP identifies nine hazards that pose a threat to the City of Redmond. Mitigation efforts are considered for the following hazards:

- Severe Storms
- Earthquakes
- Floods
- Fire
- Landslides
- Pandemics
- Heat Waves
- Drought
- Hazardous Materials

This HMP defines each hazard, assesses the risk to the City of Redmond, and provides long-term mitigation strategies. The primary users of the document will be the City of Redmond Planning Department, Emergency Management, and Emergency Services.

<sup>1</sup> FEMA, "FEMA: Mitigation," http://www.fema.gov/government/mitigation.shtm#1.

The document contains information relevant to other departments, including Public Works, the Parks Department, Information Systems GIS Division, and Financial Services. The HMP will be publically available.

#### **Plan Organization**

This HMP is organized into five parts and 14 chapters that follow the phases of the plan's development as follows:

- Part 1 Introduction and Community Profile
- Part 2 The Planning Process
- Part 3 Hazard Identification and Risk Assessment
- Part 4 Mitigation Strategies
- Part 5 Plan Maintenance

Supporting documentation, maps, tables, and public participation instruments are included throughout the document and/or in the appendices.

The following matrix summarizes where and how this plan has been updated from the 2006 and 2004 versions of the Redmond Hazard Mitigation Plan.

Revision to Updated Plan				
Parts	2004	2006 Review	2009 - Update	Reasons for Change
Part 1 - Introduction and Community Profile	Community profile Information reflected information available in 2004.	Community profile relied on information available in 2004 Plan	Introduction was changed to reflect 2009 Plan. Community profile was updated where more current data was available. New Census Tract and block census data was not available. New data from US Bureau of the Census principally the "2005-2007 American Community Survey, Housing Characteristics" was used where appropriate. Revised City planning areas and vision statements were incorporated into process.	Changes were made to make HMP current and describe analysis.
Part 2 - Planning Process	The 2004 HMP was the product of a process that included a number of contributors in the City of Redmond. This body of contributors evolved into the Mitigation Implementation Committee (MIC)	relied on assessing Action items by Mitigation	Update relied on the Mitigation Implementation Committee (MIC) and public participation. The MIC process afforded Project Team access to professionals in Redmond. The public participation included public meetings, workshops, surveys, and public reviews.	Update includes use of Web site and online surveys not available in 2004. Document was redesigned to be more readable. Changes reflect new data and a maturing by the City gaining capabilities. Completed Action Items described and new items included with six mitigation strategies.
Part 3 - Hazard Identification and Risk Assessment	In support of the risk analysis and to provide a visual image of risk, three scenarios were included: Large-Scale Regional Event (Seattle Fault), Small-Scale Localized Event (Iandslide) and Catastrophic Localized Event (Pipeline explosion). The Hazard Identification and Vulnerability Analysis (HIVA) used data available in 2004. Hazards Included:  • Drought • Earthquakes • Epidemics • Flooding • Hazardous Materials • Heat Waves • Landslides • Terrorism • Wildfire • Winter Storms	remained unchanged. Review considered the following hazards and vulnerabilities in addition to those included within the original Plan.  • Climate changes	The 2009 Update applied a new risk algorithm to hazards included in the 2004 Plan as amended in 2006.  Similar to the 2004 Plan, risks were driven by three probable scenarios looking at regional, municipality-wide and localized events. These included Crustal Earthquake, Winter Storm and Landslide. Following are specific changes by hazard.  • Climate change: Not included in 2004. Analysis relied on data provided by UW Climate Impact Group (CIG) and International Panel on Climate Change (IPCC). Probable impacts were included in analysis of secondary hazards: heat waves, flooding, wildfire, landslides and drought.  • Winter Storms: Analysis updated with current information and knowledge gained from recent storms.  • Earthquakes: Added emphasis was given to impacts from a South Whidbey Fault event. New soils data and results of Seattle Fault HAZUS runs incorporated into analysis.  • Flood: New flood event information, insurance policy, topography and land use information incorporated.  • Wildfire: New land used data factored into analysis.  • Landslides: Revised inventories and land use data were incorporated into analysis.  • Pandemics: H1N1 impacts along with changes in land use were included.  • Heat waves: Analysis was updated with recent information  • Drought: New information built upon 2004 analysis  • Hazardous Material: New SARA Tier II and LEPC data was incorporated into analysis.	Update took advantage of new data leading to new perceptions of risk.
Part 4 - Mitigation Strategies	Plan product of 2004 process that resulted in 10 Action items.	2004 items and a	Six strategies are offered with actions items included within each strategy. New and updated Action Items and mitigation strategies were prioritized, based on new 2009 risk and benefit cost analysis, importance to the life and safety of the Redmond.	The Planning Team and MIC felt that including Action Items within Strategies make the items easier to understand and implement.
Part 5 - Plan Maintenance	Established membership and offered procedures for MIC.	Review process relied on Mitigation Implementation Committee	The Redmond Office of Emergency Management remains responsible for plan maintenance. Role of MIC remains unchanged.	Basic process remains unchanged. Emphasis given to public process expanded and designed to exploit new technologies.